

## CLAIMS

1           1.     A simple, convenient, portable mini-distillation apparatus for the  
2 production of essential oils and hydrosols, which comprises one or more vessel(s) (1)  
3 capable of being heated either internally/externally or both, the inside bottom of the said  
4 vessel(s) being provided with a threaded rod (6) fixed concentrically in such a manner so  
5 as to allow vertical movement of a sieved false bottom (5), one or more steam spurger(s)  
6 (24) being provided between the vessel bottom (2) and the said movable false bottom (5,  
7 7), the said vessel(s) being provided with lids(s) (3) having one or more safety valve(s)  
8 (21), said lid(s) being attached with the vessel by means of removable fixing means, the  
9 lid(s) are also provided with parameter gauges (20) such as pressure, vacuum,  
10 temperature gauges and a vapor outlet(s) (9), the said vapor outlet(s) being connected by  
11 known means to the inlet of one or more vertical cohobation column(s) (8), the outlet(s)  
12 of the said cohobation column(s) being fixed by known means to the inlet (10) of a  
13 condenser (11) provided with closeable vent (15), the outlet (12) of the said condenser  
14 being detachably connected by one or more connecting means (14) to a vertical receiver-  
15 cum-separator column (13) having a valve (18) at its lower end, which controls an outlet  
16 (23), the bottom and middle of the said receiver-cum-separator column being provided  
17 with a plurality of valves (17, 19) which control flow of fluids in one or more recycling  
18 means (16) connected to the upper portion of the said cohobation column(s).

1           2.     An apparatus as claimed in claim 1 wherein the false bottom (5) in  
2 the vessel (1) is used to hold the plant material to be distilled by adjusting at a suitable  
3 height to accommodate the material.

1           3.     An apparatus as claimed in claim 1 wherein, when the apparatus  
2 used in water distillation method, the false bottom (5) is removed completely from the  
3 vessel (1) or kept at the lowest possible height from the base and then the plant material is  
4 charged along with water for processing and the plant material is immersed in water.

1                   4.     An apparatus as claimed in claim 1 wherein, when the apparatus is  
2 used in water and steam distillation method, the level of the water charged in the vessel  
3 (1) is kept below the false bottom (5) and the plant material is charged over the false  
4 bottom (5) which is adjusted by revolving clockwise or anti-clockwise as the case may be  
5 on the threaded rod (6), the false bottom (5) here is used to separate the plant material  
6 and water.

1                   5.     An apparatus as claimed in claim 4 wherein, the false bottom (5) is  
2 so adjusted to accommodate the plant material which is very less to distil in a given  
3 capacity of distillation unit preferably at least one fifth of the holding capacity of the unit  
4 to minimize or no loss of essential oil.

1                   6.     An apparatus as claimed in claim 1 comprising steam spurger (24)  
2 having holes is provided below the false bottom (5) in the vessel (1) and when steam is  
3 injected into the vessel through the steam spurger for distilling the plant material which is  
4 kept on the false bottom by steam distillation method.

1                   7.     An apparatus as claimed in claim 1 wherein the vessel is heated  
2 internally by means of known heating system preferably electrical system and externally  
3 by any conventional/non-conventional heating means/sources selected from fire woods,  
4 coal, oil, gas burners, boilers etc.

1                   8.     An apparatus as claimed in claim 1, wherein the vessel has a height  
2 to diameter ratio in the range of 0.5 to 1.5

1                   9.     An apparatus as claimed in claim 1, wherein the vessel, cohobation  
2 column, condenser and recycling pipes are made up of metals selected from stainless  
3 steel, copper, tin.

1                   10. An apparatus as claimed in claim 1, wherein the receiver-cum-  
2 separator is made up of glass, coated with transparent plastic or covered with an  
3 aluminum casing.

1                   11. An apparatus as claimed in claim 1 wherein, the vertical receiver –  
2 cum-separator column is graduated.

1                   12. An apparatus as claimed in claim 1, wherein the closeable vent (15)  
2 of the condenser is optionally connected through a valve to a vacuum pump.

1                   13. An apparatus as claimed in claim 1 wherein, the cohobation column  
2 is connected to the vessel, condenser by means of clamps with or without gaskets, O-  
3 rings, threaded arrangements with or without gaskets.

1                   14. An apparatus as claimed in claim 1 wherein, the condensing means  
2 is any conventional means such as water or air cooling condenser.

1                   15. An apparatus as claimed in claim 1, wherein the vessel is provided  
2 with handles.

1                   16. An apparatus as claimed in claim 1, wherein the steam spurger (24)  
2 is connected to one or more external steam sources such as boilers.

1                   17. An apparatus as claimed in claim 1 wherein, the fluids escaping from  
2 the condenser may be recirculated to the vessel (1) or collected in separate containers  
3 using known means.